UDC 669.71.004.2

USSR

GEORGIYEVSKII, Yu. I., MANOKHA, I. Ye.

"Device for Automatic Analysis of Aluminum Electrolyzer Anode Gases"

Avtomatiz Khim. Proiz-v [Automation of Chemical Production -- Collection of Works], No 8, Kiev, Nauk Dumka Press, 1971, pp 189-193. (Translated from Referativnyy Zhurnal Metallurgiya, No 2, 1972, Abstract No. 2G172 by S. Krivonosova).

Translation: The design and operating principle are described of an industrial installation for collection, purification, and analysis of anode gas. The gas from the anode of an electrolyzer, with a pressure of 200-500 mm Hg, passes through a gas collection tube, gas line, and 3-element filter, where it is cleaned of dust, impurity AlF_3 particles, and other substances. As it passes through the first and second chemical filters, the gas is purified of compounds of F. A bubbler between the filters scours a portion of the gas, stabilizing the head at 200 mm Hg. The gas then passes through a test filter to the measuring chamber of a gas analyzer, which produces an electric signal proportional to the CO_2 concentration. Tests of the device have shown that the zero drift decreased over 10 days' operation to 1% (in comparison to 5-7% with the ordinary method of analysis); the duration of operation of the sensing elements of the gas analyzer was increased by a factor of 3, of the ceramic filter -- by a factor of 5; the accuracy of indications was increased by

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USSR UDC 669.71.004.2

GEORGIYEVSKII, Yu. I., MANOKHA, I. Ye., Avtomatiz Khim. Proiz-v, No 8, Kiev, Nauk Dumka Press, 1971, pp 189-193.

stabilization of the flow. 1 fig; 2 biblio refs.

2/2

USSR

UDC 669.71.472(088.8)

GEORGIYEVSKIY, YU. I.

"Device for Controlling the Process of Obtaining Aluminum"

USSR Author's Certificate No 273442, Filed 9 Sep 67, Published 10 Sep 70 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G151P)

Translation: This device contains a drive for displacement of the anode of the electrolyzer, a regulator, and an electrolyzer resistance sensor. To insure maximum output values with respect to current and to improve the control accuracy, series-connected sensors of anode gases, a gas analyzer, and a summator whose output is connected to an extremal step-type regulator are introduced in it. The output of the resistance sensor is connected to the second input of the summator.

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USSR

UDC 669.71.472(088.8)

GEORGIYEVSKIY, YU. I., ZARECHNYY, V. F., BALASHOV, I. I., MANOKHA, I. YE.

"Procedure for Regulating the Operation of Aluminum Electrolyzers"

USSR Author's Certificate No 235337, Filed 14 Jul 67, Published 8 Oct 70 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G155P)

Translation: A procedure is proposed for regulating the operation of Al-electrolyzers by the maximum CO_2 concentration in anode gases by means of an extremal step-by-step search. In order to save electric power, at the beginning of the search a trial shift of the anode downward is made, and in case the CO_2 concentration drops in the anode gases the anode is gradually shifted upward to the maximum value of the CO_2 concentration in the anode gases.

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USSR

UDC 669.71.472(088.8)

GEORGIYEVSKIY, YU. I., ZARECHNYY, V. F., BALASHOV, I. I., MANOKHA, I. YE., BUTS, L. YA.

"Method of Varying the Pole Spacing in an Aluminum Electrolyzer"

USSR Author's Certificate No 273440, Filed 10 Jun 67, Published 21 Sep 70 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G157P)

Translation: A procedure is proposed for varying the pole spacing in an aluminum electrolyzer by vertical displacement of the anode. In order to improve the accuracy of varying the pole spacing, after completion of the command from the control agent to shift the anode downward, a direct current is fed to the stator of the anode drive motor for instantaneous halting of the anode.

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USSR

UDC 669.71.472(088.8)

GEORGIYEVSKIY, Yu. I., BALASHOV, I. I., ZARECHNYY, V. F., and MANOKHA, I. Ye.

"Method of Determining the Anode Effect on Aluminum Electrolyzers"

USSR Author's Certificate No 272568, Filed 8/07/66, Published 7/09/70 (Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract No 2 G144 P)

Translation: A method is suggested for determining the anode effect on aluminum electrolyzers. The first derivative of Al yield per current with time is measured in order to predict the anode effect phenomenon, and an approximation of the anode effect is determined from the magnitude and sign of this Al yield.

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USSR

UDC [537.226+537.311.33]:[537.535]

GEORGOBIANI, A. N., LAVROV, A. V., TODUA, P. A., CHIKHACHEVA, V. A.

"Characteristics of the Electroluminescence of Homogeneous Zinc Sulfide Single Crystals Caused by Acoustoelectric Instability"

Kratkiye soobshch. po fiz. (Brief Communications in Physics), 1971, No. 6, pp 31-34 (from RZh Fizika, No 12, Dec 71, Abstract No 12Ye144)

Translation: A study of the electroluminescence in ZnS:I crystals which occurs upon the rise of acoustoelectric instability is described. The relaxation time of the electroluminescence $\leq$2 usec, which is 2-3 orders less than the corresponding times for luminophors based on ZnS. The electroluminescence spectrum and the dependence of brightness on the applied field were measured. V. A. Chapnin.

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USSR UDC 612.766.1-06:613.24

KAKURIN, L. I., PURAKHIN, YU. N., GEORGYEVSKIY, V. S., KATKOVSKIY, B. S., VYSOTSKIY, V. G., CHEREPAKHIN, M. A., USHAKOV, A. S., LARICHEVA, K. A., PETUKHOV, B. N., IVANOV, P. P., MACHINSKIY, G. V., MIKHAYLOV, V. M., POMETOV, YU. D., and SMIRNOVA, G. I.

"Locomotor Activity of Man Kept on a Reduced Food Ration"

Moscow, Voprosy Pitaniya, No 3, May/Jun 1971, pp 7-12

Abstract: The combination of drastic limitation in locomotor activity with reduction to a low-calorie diet (down to basal metabolism) was studied in six healthy men 24-35 years of age who were confined to bed for a number of days under conditions of hypokinesia. Pronounced changes were observed in the functions of the cardiovascular, respiratory, nervous, and muscular systems of the body. Tabular data were collected on physiological tremor of closed yes, maximum physical work fitness, muscle tone dynamics, and the cardiovascular system in the orthostatic position. Asthenia of the nervous system and a slowing down of the biopotentials in the cerebral cortex were observed. Likewise, it was noted that hypokinesia caused disturbances in body coordination and statics. The pulse rate increased and the arterial pulse pressure was

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- USSR

KAKURIN, L. I., Voprosy Pitaniya, No 3, May/Jun 1971, pp 7-12

reduced in persons subjected to the orthostatic test. Three persons reached a state of near collapse. These changes were attributed to a significant recuction in the compensating actions of the blood circulation. It was found that after about 10 days, the observed changes gradually decreased in the test subjects. This regression was largely of a functional character and was linked to the "detraining" of the various systems of the body. The authors believe that the severity of the changes in the body functions is directly proportional to the degree of hyperkinesia to which the tested persons were subjected. It is proposed that maintenance of homeostasis requires a certain level of motor activity even with a low-calorie ration.

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USSR

UDC 621.382.2:546.19'681

KULISH, U.M., VASIL'YEV, A.P., VYATKIN, A.P., YELISEYEV, P.G., GEORGOGENOV, V.P.

"Effect Of Formation Conditions On The Electrical Properties Of Epitaxial P-N Junctions In Gallium Arsenide"

V sb. Arsenid galliya (Gallium Arsenide--Collection Of Works), Issue 3, Tomsk, Tomsk University, 1970, pp 152-162 (from RZh--Elektronika i yeye primeneniye, No 3, March 1971, Abstract No 3B384)

Translation: The electrical properties were investigated of p-n junctions in GaAs obtained by the method of liquid epitaxy. The electrical characteristics of p-n junctions obtained in a narrow temperature interval depend on the epitaxy temperature, which is explained by the corresponding dependences of the solidus curves of the corresponding quasi-binary systems. During subsequent heat treatment even short-duration annealings lead to a leveling of the electrical characteristics of "abrupt" p-n junctions and a disappearance of the dependence of their parameters on the epitaxy temperature. The crystallographic orientation of the substrate significantly influences the electrical and optical properties of laser junctions. Acceptor impurities exert various effects on the electrical and optical properties of epitaxial laser semiconductor diodes. 8 ref. Summary.

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6

USSR

GEPTNER, M. V., Scientific Associate Institute of Oceanology, Academy of Sciences USSR

"Luminescent Bacteria"

Moscow, Prioroda, No 2, 1970, pp 120-121

Abstract: A dead pike luminesces, like other river fishes, not because its bones or cartilage contain a great deal of phosphorus, but because of the presence of luminescent bacteria that invade the tissues of dead fishes. Some three dozen species of luminescent bacteria are now known. They differ widely in biological characteristics. They include: (i) pathogenic forms that almost invariably kill freshwater fishes and crustaceans; (ii) free living forms that dwell deep in the water and in films on its surface, and that cause luminescence in the northern and tropical seas; and (iii) symbiotic bacteria, usually localized in certain tissues of the animal host or in specialized organs, called photophores. Luminescence is caused by the oxidation of a substrate consisting of flavin mononucleotide and one of the aldehydes. The reaction involves participation of the enzyme luciferase. Luminescent bacteria are used by microbiologists principally as a convenient object for studying some aspects of bacterial metabolism or for obtaining minor sources of cold light.

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USSR

UDC: 632.95.024.1:(575.4)

GEL'TSER, Yu. G., GEPTNER, V. A., STONOV, L. D.

"Concerning the Effect of Herbicides on the Microorganisms of Mud and Water in the Collecting Basins of the Chardzhou Oasis in the Turkmen SSR"

Moscow, Agrokhimiya, No 6, Jun 72, pp 119-123

Abstract: The article is a report on a study done in 1968-1969 to determine the effectiveness of herbicides against microorganisms in the water and bottom silt of collecting basins in the Chardzhou oasis of the Turkmen SSR. Diurone and Monurone herbicides were studied. It was found that the herbicides differ in their effect on different physiological groups of microorganisms: in some instances the herbicide suppressed growth and development of microbes (actinomycetes and cellulose-disintegrating microbes), in other cases no appreciable effect on the numbers of the microbes was observed (spore microbes). Diurone showed the greatest bactericidal effect in the first few days after application, followed by an increase in the numbers of bacteria. Experiments in vitro showed that a 10% solution of Diurone is most lethal for the microorganisms; a 0.5% solution had no suppressive effect on the bacteria (with the exception of Pseudomonas and Azotobacter).

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Ecology

USSR

FORMOZOV, A. N. and GEPTNER, V. G. (Reviewers)

Biotsenozy pustyni Kyzylkum (Biocenoses of the Kyzylkum Desert), by T. Z. Zakhidov, Tashkent, 1971, 300 pp

Moscow, Nauchnyye Doklady Vysshey Shkoly, Biologicheskiye Nauki, No 7, 1972, pp 140-141

Abstract: The monograph under review is praised as the most complete and many-sided description and analysis of the fauna and biological phenomena in the Asian desert to appear in the Soviet literature. Based on field trips, it embraces all aspects of the desert in different seasons and in years with different weather conditions. The animals are shown to be part of a large, complex and yet integral structure. Close attention is given to the origin of the desert, geological structure, hydrology, climate, and weather. The vegetation is regarded as a unique arena of life. Besides describing most invertebrate species, their distribution and biology, Zakhidov analyzes the biocenotic associations of the animals in the Kyzyl Kum area in sandy, sagebrush, and salt deserts. His detailed history of research on the Kyzyl Kum area is a major contribution to the study of Central Asian deserts in general. The sole criticism of the reviewers is that the author relied mainly on the literature published up to 1950 and thus failed to consider some later valuable studies, e.g., on the ecology of desert mammals.

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1/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--PHARMACOLOGICAL CHARACTERIZATION OF SOME MUSCLES IN ANNELIDS AND SIPUNCULIDS -U-

AUTHOR-(04)-GER, B.A., DARDYMOV, I.V., LAVRENTYEVA, V.V., MIKHELSON, M.YA.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EVOLYUTSIONNOY BIOKHIMII I FIZIOLOGII, 1970, VOL 6, NR 2, PP 187-197

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

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CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0356 STEP NO--UR/0385/70/006/002/0187/0197

CIRC ACCESSION NO--AP0132587

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0132587

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDIES HAVE BEEN MADE ON THE CHOLINORECEPTION IN THE PROBOSCIS RETRACTOR OF THE SIPUNCULID PHYSCOSOMA JAPONICUM AND IN BODY WALL MUSCLES OF TWO ANNELIDS, LUMBRICONEREIS IMPATIENT AND SERPULA VERMICULARIS. THE RESULTS WERE COMPARED WITH THOSE OBTAINED ON MUSCLES OF TWO OTHER ANNELIDS, HIRUDO MEDICINALIS AND ALLOLOBOPHORA LONGA. ALL THESE MUSCLES EXHIBIT COMPARATIVELY HIGH SENSITIVITY TO ACETYLCHOLINE PROVIDED THEIR CHOLINESTERASES ARE INHIBITED. CHOLINORECEPTORS OF THE MUSCLES EXAMINED ARE PREDOMINANTLY OF THE NICOTINIC TYPE. HOWEVER THE CLASSIFICATION OF CHOLINORECEPTORS AS MUSCARINIC AND NICOTINIC ONES WHICH IS ACCEPTED FOR VERTEBRATES, CANNOT BE FULLY APPLIED TO INVERTEBRATES. SIMILARLY, CLASSIFICATION OF CHOLINESTERASES AS ACETYLCHOLINESTERASE AND BUTIRYLCHOLINESTERASE DOES NOT EMBRACE ALL THE VARIETY OF INVERTEBRATE CHOLINESTERASES. SOME SIGNS OF OLIGOMERIC STRUCTURE IN THE CHOLINORECEPTORS WERE DISCOVERED IN THE MUSCLES STUDIED. EVIDENT SIGNS OF C-16 STRUCTURE WERE FOUND IN A. LONGA AND S. VERMICULARIS. C-10 STRUCTURE WAS OBSERVED ONLY IN A. LONGA. CHOLINOLYTIC AGENTS WITH TERTIARY NITROGEN INDUCE PERIODIC ACTIVITY IN THE PROBOSCIS RETRACTORS OF PHYSCOSOMA, WHICH RESULTS PRESUMABLY FROM THE EFFECT OF THESE AGENTS ON THE NERVOUS ELEMENTS OF THESE MUSCLES. FACILITY: INSTITUTE OF EVOLUTIONARY PHYSIOLOGY AND BIOCHEMISTRY, USSR ACADEMY OF SCIENCES, LENINGRAD.

UNCLASSIFIED

USSR UDC 612.748+612.815.2

GER, B. A., Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenov, Academy of Sciences USSR, Leningrad

"The Role of the Physical-Biochemical Dissociating Mechanism of Two-Chamber Synapses in the Evolution of Rapid Synaptic Transmission"

Moscow, Doklady Akademii Nauk SSSR, Vol 209, No 5, 1973, pp 1239-1242

Abstract: Comparison of muscle fibers of types I (tonic), II (slow phasic), and III (fast phasic) shows that with an increasing membrane potential and critical potential of the muscle fiber, there is: a) an increase in the quantity of acetylcholine discharged into the synaptic space by a single nerve impulse and a simultaneous increase in the amplitude of synaptic potentials, as well as b) a decrease in the duration of synaptic potentials and a simultaneous increase in the transmission capacity of the synapse. It appears that in the course of evolution, the association of processes a and b imposed contradictory requirements on ACh. In the tonic muscle where the interior of the synapse consists of just one chamber, the duration of synaptic potentials can be shortened by accelerated hydrolysis of ACh (larger amount and higher activity of cholinesterase). However, this simultaneously reduces the amplitude of synaptic potentials. In the phasic muscle, the quantity of ACh found in the whole

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APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200910014-2"

USSR

GER, B. A., Doklady Akademii Nauk SSSR, Vol 209, No 5, 1973, pp 1239-1242

two-chamber synapse is large. This synapse forms a two-phase system. Hydrolysis proceeds very slowly during the first phase while the bulk of ACh is in the first chamber, stimulating choline receptors. ACh concentration in the first chamber abruptly falls as a result of the mediator's rapidly diffusing into the second chamber which has no choline receptors and which is especially large in type III synapses. Duration of the postsynaptic potential corresponds to the diffusion time. The second phase involves hydrolysis of ACh and takes place in the second chamber where the mediator is no longer physiologically effective. Thus, the principal aspect of the two-chamber system is a physical-biochemical dissociation of the mechanism of action: stimulation of postsynaptic structures takes place in the first chamber, while hydrolysis occurs in the second chamber. Since the mediator remains in the first chamber for a very brief period, the duration of synaptic potentials is equally brief. Since the second chamber has a large capacity, a large quantity of the mediator may be and is released by each single nerve impulse, thus generating synaptic potentials of big amplitude. Furthermore, since cholinesterase no longer controls the duration of synaptic potentials, it can be and is stored in large quantities so as to hydrolyze any amount of ACh entering the second chamber. Ultimately, all these developments increase the transmission capacity of the synapse.

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USSR

UDC 612.748+612.815.2

GER, B. A. and FILATOV, P. P., Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenov, USSR Academy of Sciences, Leningrad

"Intrasynaptic Diffusion in Two-Cell Synapses"

Moscow, Doklady Akademii Nauk SSSR, Vol 213, No 2, 1973 pp 486-489

Abstract: An attempt is made to show a dependence between the anatomical structure of a two-cell synapse and the spatial-temporal mediator distribution. Evaluating the time necessary for equalization of acetylcholine concentration in the synapse after one nervous impulse and comparing it to the actual postsynaptic current leads to a paradoxical lack of dependence. Therefore a spatial-temporal function of acetylcholine concentration was constructed for enzyme absence which showed that transient mediator concentrations can greatly exceed equilibrium, leading to a biochemical assymetry of the postsynaptic membrane. Adding a term for cholinesterase concentration in the second fissure excludes the possibility of stationary acetylcholine concentration in the system in general. The equations allow one to prepare that the effect of curare is due to lowering the receptor concentration and decrease in the reactive postsynaptic membrane area.

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USSR

UDC 612.815:577.3

GER, B. A., DYN'KIN, Ye, M., and KACHMAN, A. N., Institute of Evolutionary Physiology and Chemistry imeni I. M. Sechenov, Academy of Sciences USSR, Leningrad, and All-Union Scientific Research Institute of Synthetic Rubber imeni S. V. Lebedeyev, Leningrad

"A Two-Chamber Diffusion Model of a Synapse"

Moscow, Doklady Akademii Nauk SSSR, Vol 209, No 2, 1973, pp 508-511

Abstract: Considering the rapidity with which fast mammalian skeletal muscles can contract and relax, the following assumptions and approximations are made with regard to the neuromuscular synapse: 1) acetylcholine conc. (C_1) in the synaptic cleft (V_1) is reduced through a) enzymatic hydrolysis, b) diffusion outside the synapse; and c) diffusion into the postsynaptic structure (V_2); 2) V_2 is much larger than V_1; 3) V_1 is connected with V_2 by means of pores located on the postsynaptic membrane and occupying 10-20% of its area; 4) the area of contact between V_1 and the extrasynaptic space is so small that diffusion of the mediator outside the synapse can be disregarded; 5) ACh molecules can freely diffuse throughout the synapse; and 6) the total area of the postsynaptic membrane on which enzymatic hydrolysis of the mediator takes place is about 0.05% of the total area through which diffusion into V_2 takes place.
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USSR

GER, B. A., et al., Doklady Akademii Nauk SSSR, Vol 209, No 2, 1973, pp 508-511

On the basis of these assumptions and known facts, a mathematical model is developed which indicates that after each secretory discharge of ACh, there is an immediate abrupt fall of C_1 to C_2 due to diffusion into V_2, which is followed by a gradual reduction in C_2 due to enzymatic hydrolysis. ACh conc. in V_2 is always below a certain critical level, that is, the synapse is never overfilled. Thus, when $V_1/V_2 = 1/20$, the two-chamber system with diffusion pores can transmit impulses of a frequency 10 times as high as what can be handled by a one-chamber system with simple absorption.

2/2

USSR UDC: 621.391.883.2

GATKIN, N. G., GERANIN, V. A., KARNOVSKIY, M. I., KRASNYY, L. G.

"Resistance to Interference of a Typical Signal Detection Channel"

Pomekhoustoychivost' tipovogo trakta obnaruzheniya signalov (cf. English above), Kiev, "Tekhnika", 1971, 203 pp, ill. 73 k. (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A37)

Translation: The book is made up of three chapters: the first deals with the basic elements of a typical detection channel (detectors and filters), the second is devoted to the detection of signals against a background of stationary interference, and the third takes up detection of signals against a background of nonstationary interference. The book was compiled from materials of original investigations by the authors. N. S.

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USSR

UDC 519.24

GERANIN, V. A., GONCHAROVA, A. Ya., MIRONOV, N. A., PRODEUS, A. N..

"Influence of Errors in Quantization of a Random Process on Accuracy of Measurement of Correlation Function"

Metody Predstavleniya i Apparaturn' Analiz Sluchayn. Protsessov i Poley, 3-y vses Simpozium. Sekts. 5, [Methods of Representation and Hardware Analysis of Random Processes and Fields. Third All-Union Symposium, Section 5--Collection of Works], Leningrad, 1970, pp 71-76, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V196 by A. Dorogovtsev).

Translation: The dispersion of the estimate of a correlation function of a stable process is studied, constructed on the basis of discrete observations of the process, distorted either by additive random addition or produced at random moments in time, differing slightly from fixed nonrandom moments.

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USSR

UDC: 621.376.332(088.8)

GERASHCHENKO, A. F.

"Broad-Band Frequency Discriminator"

Avt. sv. SSSR (Author's Certificate USSR) Class 21a[1], 42, (H 03 d) No. 272391, Application 4.01.67, Publication 22.09.70 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3D84P)

Translation: A frequency discriminator is proposed, containing two detuned circuits and two inductively coupled amplitude detectors. To reduce the bias of the zero characteristic and increase the transfer factor, a resistor and capacitor, forming an oscillatory circuit with the coupling inductance and tuned to the second harmonic of the average frequency, are connected in parallel to the input of one of the amplitude detectors.

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USSR

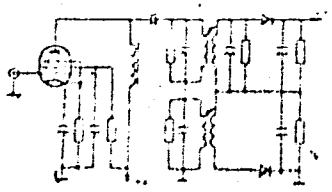
UDC 621.376.332

GERAHCHENKO, A. F.

"A Wide-Band Frequency Discriminator"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 19, 1970, Author's Certificate No 272391, Filed 4 Jan 67, p 48

Abstract: This author's certificate introduces a wide-band frequency discriminator which contains two detuned circuits and two amplitude detectors which are inductively coupled to these circuits. As a distinguishing feature of the patent, the zero drift of the discrimination characteristics is reduced and the transfer constant is increased by connecting a resistor and capacitor in parallel with the input of one of the amplitude detectors. In conjunction with the coupling inductance, these elements form an oscillatory circuit tuned to the second harmonic of the mean frequency.



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USSR

UDC:629.78.002.3

GERASIMENKO, G. I., AKSHENTSEVA, A. P., ZHDANOV, V. D., MAKAROVA, L. S.

"Two-Layer Metal Type 3 Steel Plus N70M27F for Welded Apparatus Used in Highly Corrosive Media"

Sb. Nauch. Tr. Vses. N.-I. i Konstrukt. In-t Khim. Mashinostr. [Collected Scientific Works of All-Union Scientific Research and Design Institute for Chemical Machine Building], 1973, No 6, pp 15-17 (Translated from Referativnyy Zhurnal Raketostroyeniye, No 10, 1973, Abstract No 10.41.156 from the resume)

Translation: A technology is developed for welding and pressure working of a two-layer metal consisting of type 3 steel plus N70M27F, and areas of its application are defined. An optimal heat-treatment mode is recommended and it is shown that heating to 700-850° C for 2-5 hours causes embrittlement of the cladding layer and reduces its corrosion resistance. 4 Figures; 2 Tables.

1/1

USSR

UDC 547.944/945

BONDARENKO, N. V., SHINKARENKO, A. L., GERASHCHENKO, G. I., Vitebsk Technological Institute of Light Industry, Pyatigorsk Pharmaceutical Institute

"Alkaloids from Veratrum Lobelianum. III"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 6, 1971, pp 854-855

Abstract: Chromatography in a cellulose column was used to isolate three alkaloids from the alkaloids obtained by processing the roots with rhizones of Veratrum lobelianum Bernh. with ether. The alkaloids had the following R_f values: I -- 0.45, II -- 0.20, III -- 0.75. Experimentally obtained physical and chemical characteristics of the alkaloids are presented indicating that alkaloid I is desacetylprotoveratrin A, alkaloid II is rubijervine and alkaloid III is isorubijervine. The experimental procedures used on the three alkaloids to determine the presented data are given.

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UDC 547.944:945

USSR

BONDARENKO, N. V., SHINKARENKO, A. L., and GERASHCHENKO, G. I., Vitebsk Technical Institute of Light Industry, Pyatigorskiy Pharmaceutical Institute

"Determination of the Location of the Acyl Groups and the Nature of Some Amino Alcohols in Native Ester Alkaloids of the Veratrum Species"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 4, 1970, pp 440-443

Abstract: The ester alkaloids of Veratrum are based on the amino alcohols zygadenine, protoverine, and germine. Depending on the degree of esterification, one distinguishes between mono-, di-, tri-, and tetraester alkaloids. The acyl groups occurring in these alkaloids are derived from eight acids. They may be located at positions C_3, C_6, C_7, or C_{15}. The authors derived a scheme according to which the position of the acyl group is easily ascertained. It is necessary only to determine the nature of the amino alcohol, the acyl groups, and the number of ester groups, which is relatively easily accomplished in the course of a structural study of the ester alkaloids. Subsequently one uses the scheme worked out by the authors, following the observed regularities in regard to the arrangement of the acyl groups in the Veratrum ester alkaloids, the boiling point, the nature of the substituent

USSR

BONDARENKO, N. V., et al, Khimiya Prirodnykh Soyedineniy, No 4, 1970, pp 440-443

at the C_7 atom, and in regard to the forms of the amino alcohols on which the ester alkaloids are based. In particular, it was found that alkaloids with a free hydroxyl group at the C_7 position melt at a temperature below 220°C and alkaloids with no hydroxyl group or an esterified hydroxyl group melt at temperatures above 220°C. Monoester alkaloids melting above 220°C are derived from zygadenine; triester alkaloids melting above 220°C are derived from germine, those melting below 220°C and all tetraester alkaloids are derived from protoverine.

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USSR UDC 536.628

GERASHCHENKO, O. A., KARPENKO, V. G., TATARINOV, E. A.

"Adiabetic Calorimeter for Contact Calibration of Thermal Flow Gauges"

Teplofiz. i teplotekhnika. Resp. mezhved. sb. (Thermal Physics and Power Engineering -- republic interdepartmental collection of works), 1970, Vol 16, pp 83-86 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 8, Aug 70, Abstract No 8.32.644)

Translation: The peculiarities of calibration of thermal flow gauges by the radiation and contact methods are considered. The design and principal of operation of the low-inertia adiabetic calorimeter with automatic compensation of heat losses developed by the Institute TTF of the Ukrainian Academy of Sciences is described. As the source of zero-indicator which controls absence of heat escape from the low-inertia adiabetic calorimeter is used a high-sensitivity thermoelectric battery with $n \geq 3 \cdot 10^3$ number of microelements due to which the thermal losses of the low-inertia adiabetic calorimeter do not exceed ± 0.1-0.2%. The low-inertia adiabetic calorimeter is designed for contact calibration of thermal flow gauges. 3 ill., 2 bibl. entries.

1/1 Resume

AA0044250 G Gerashchenko, O. A.

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

2/70

243902 HEAT FLOW RECORDER in particular for bread baking ovens can measure directly the heat flow during the baking process. The heating surface is covered by a substance, the heat absorption of which is equal to the mean average of absorbing capacity of the material being baked while draining channels (4) are provided in the body of the plate 1. Thermo-electrodes are placed inside the plate. The heat absorbing surface is covered with a layer of a mass 2 with an absorption equal to that of the baked material 3. The coating consists of a mixture of amorphous carbon, pumice and liquid glass. The body of the plate is made of a material with a heat absorption capacity equal to that of the crust of the baked bread.

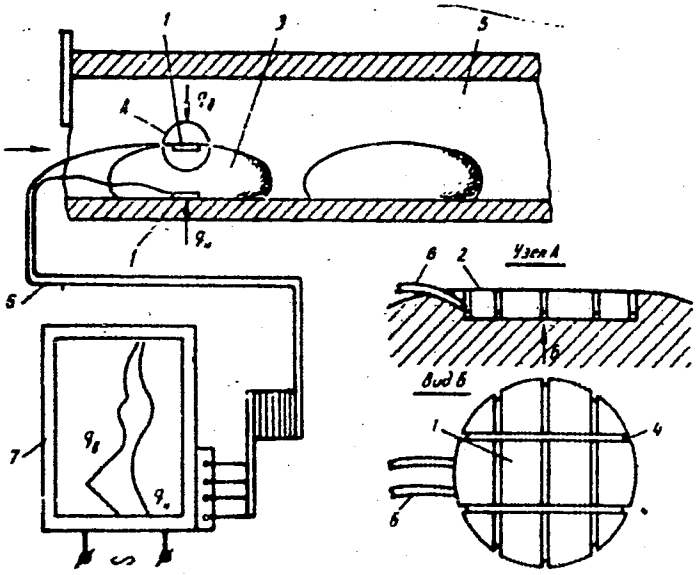
27.11.67 as 1199288/28-13. A.T.LISOVENKO et al. KIYEV INST. OF FOOD IND.(26.9.69) Bul 17/14.5.69. Class 42i, 2a. Int.Cl.G 01k.A21b.

21

1/3

19770760

AA0044250



2/3

19770761

AA0044250

AUTHORS: Lisovenko, A. T., Gerashchenko, O. A., Karpenko, V. G.

Kiyevskiy Tekhnologicheskiy Institut Pishchevoy Promyshlennosti

3/3

19770762

USSR

UDC 669-415:620.175

SHTURGUNOV, I. L., LOBAREV, M. I., GERASHCHENKO, P. M.

"Estimating the Ductility of Thin Sheet Materials"

Moscow, Zavodskaya Laboratoriya, Vol 37, No. 8, 1971, p 972-974.

Abstract: A method is suggested for estimating the ductility of thin sheet materials (less than 5 mm thick), based on tests involving twisting of specimens of various shapes. A square specimen form is used for tests at 800-1300° C, a cylindrical form for tests at 20 to 800°C. The results produced are compared to the results of testing using the method of the Central Scientific Research Institute for Ferrous Metallurgy. The method described can be used to evaluate plasticity and deformation resistance of thin sheet and bimetallic materials, to study the influence of the degree of preliminary deformation, etc. 3 figs; 4 biblio refs.

1/1

GERASHCHENKO Z. V.

Acc. Nr. AP0045179 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code UR0191

91225c Physicomechanical properties of adhesive cyanoacrylate compositions. Korshak, V. V.; Polyakova, A. M.; Mager, K. A.; Semyantsev, V. N.; Askadskii, A. A.; Gerashchenko, Z. V. (USSR). *Plast. Massy* 1970, (1), 44-5 (Russ). Adhesive compns., e.g., Et α-cyanoacrylate (I), Pr α-cyanoacrylate, Bu α-cyanoacrylate, and allyl α-cyanoacrylate were modified with plasticizers and thickening agents. Addn. of 20% ethylene glycol dimethacrylate or diallyl phthalate reduced the elastic modulus of poly(ethyl α-cyanoacrylate) (II). Addn. of 20% di-Bu phthalate and 10% II to I compns. gave adhesives of superior adhesive bond strength and low elastic modulus. Some monomers were also effective as plasticizers of adhesive compns. Best results were obtained with 20% Et α-cyanosorbate. CKJR

REEL/FRAME 19780079

AA0040722 G

Gerasimchuk, A.P.

UR 0482

1-70

Soviet Inventions Illustrated, Section I Chemical, Derwent,

242205 STABILITY IMPROVEMENT FOR A FURNACE LINING CONTAINING CARBON is intended to protect the hearth from attack by synthetic slags: coke corundum briquettes are added to the molten slag so that the oxygen chemically bound and dissolved in the slag combines with the carbon in the briquettes. This retards the reaction between the slag and metal and C-containing lining blocks and thus increases the life of the lining.
9.4.68 as 1235409/22-2. KUZNETSOV.L.K.et al.CHELYAB-INSK METALS PLANT. (3.9.69) Bul 15/25.4.69. Class 18b Int.Cl.C 21 c.

20

18

19750366

AA0040722

AUTHORS: Kuznetsov, L. K.; Gerasimchuk, A. P.; Zinurov, I. Yu.; Zhavoronkov, K. P.; and Voinov, S. G.

Chelyabinskiy Metallurgicheskiy Zavod

19750367

USSR

UDC 669.71.472(088.8)

NOSIKOV, V. I., VELICHKO, B. P., and GERASIMCHUK D. I.

"Cathode Aluminum Electrolyzer Device"

USSR Author's Certificate No 270254, Filed 19/08/68, Published 20/08/70 (Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract No 2 G151 P)

Translation: To reduce electric power losses in the contact between metal and bottom mass and to increase the service life of the cathode device, the cathode rods are made as assembled packets of bars, with the space between bars corresponding to the bar placement space in the working zone of a cathode device, while the ends of the bars where the packets extend out of the shell are connected into a common contact set.

1/1

USSR UDC [537.226 + 537.311.33] : [537 + 535]

BILEN'KIY, B. F., GERASIMCHUK, R. V., PASHKOVSKIY, M. V., SAVITSKIY, V. G., FILATOVA, A. K.

"Structure and Optical Characteristics of Thin HgTe-CdTe Film Systems"

Vil'nyus, V sb. Tonkiye plenki soyedineniy tellura s metallami podgrupp tsinka i galliya (Thin Films of Tellurium Compounds With Metals of the Zinc and Gallium Subgroup -- collection of works), 1970, pp 192-196 (from RZh-Fizika, No 11, 1971, Abstract No 11E1165)

Translation: Optical transmission spectra (OTS) of thin (0.03-0.5 μ) Cd and Hg telluride films as well as of their solid solutions are investigated. The films were obtained by the method of discrete vaporization of $Hg_xCd_{1-x}Te$ monocrystals (x = 0, 0.75, 0.80, 0.85, 0.90, 1.0). The OTS detected bands E_2 (5.40 ev) and $E_1 + \Delta_1$ (4.05 ev) in CdTe films. OTS of HgTe films and solid HgTe-CdTe solutions have a clear absorption band $E_2 + S$, whose position does not change with an increase in content of the second

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USSR

BILEN'KIY, B. F. et al, Tonkiye plenki soyedineniy tellura s metallami podgrupp tsinka i galliya, 1970, pp 192-196

component. It is assumed that the fundamental absorption spectra in the case of complex systems of the type investigated can be used for controlling the composition of corresponding films.

1/2 021 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--CHEMICAL DEPOSITION OF A NICKEL CHROMIUM ALLOY -U-

AUTHOR--GERASIMENKO, A.A.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R.262,576
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970 47
DATE PUBLISHED--26JAN70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METALLURGIC PATENT, CORROSION RESISTANCE, NICKEL CHROMIUM ALLOY, CHEMICAL DEPOSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/1437 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0126968
UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AA0126968
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO OBTAIN UNIFORMLY THICK NONPOROUS ALLOYS THAT ARE HIGHLY CORROSION RESISTANT, CHEM. PPTN. TAKES PLACE AT PH 4.0-4.5 AND 86-92DEGREES IN A SOLN. WITH THE FOLLOWING COMPN. (IN G-L.): NICL SUB2 7-10, CRCL SUB3 15-20, NA, OR K HYPOPHOSPHITE 7-10, NA, OR K CITRATE 7-10, AND NH SUB4 F 5-7.

UNCLASSIFIED

USSR UDC 531.383

GERASIMENKO, I. YA., Leningrad

"Concerning a Method of Errors Dispersion Reduction in Multiple Rotor Gyroscopic Systems"

Leningrad, Izvestiya Uchebnykh Zavedeniy, Priborostroyeniye, Vol 14, No 9, 1971, pp 94-97

Abstract: Fundamentals of a method for errors dispersion reduction in multiple rotor gyroscopes are considered. This method is based on the closeness of an arithmetic mean value of a disturbed output signal to a real value. Expressions for the spectral density of the output signal at the n section and for relative dispersion are derived. An analysis of these expressions shows: 1) that the relative dispersion depends on the number of sections (n) used in the compensated system on gyroscope characteristic (kinetic moment), on correction circuit characteristic (amplification factor), and on disturbed moment characteristic (mean frequency of sign variation); 2) the closed multiple rotor system is most efficient in the case of small gyroscope and low frequency disturbances; 3) it is advisable to increase the amplification factor in the case of proportional correction. The results show that system stability does not depend on the number of rotors, and this without any unreal conditions. 1/1

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200910014-2"

USSR

UDC 669.24:539.261

BEKRENEV, A. N., GELUNOVA, Z. M., and GERASIMENKO, L. I., Petrozavodsk State University imeni O. V. Kuusinen; Volgograd Polytechnical Institute

"Study of the Substructure of Nickel After Explosive Loading"

Moscow, Fizika Metallov i Metallovedeniye, Vol 30, No 5, 1970, pp 1003-1006

Abstract: X-ray techniques were used to study the mosaic structure of nickel foil loaded with planar shock waves at pressures of 60 and 165 Kbar. Disorientation of sections of the mosaic and their dimensions were determined, as well as the microdistortions of the crystalline lattice at these pressures and various shock wave durations. A correlation was established between the development of the substructure and the level of hardening achieved. The nature of the mosaic structure of nickel grains following explosive loading was determined by the pressure of the shock wave. The duration of the shock impact had an influence only at 265 Kbar. Microdistortion and fragmentation of mosaic sections was found to be significant in the creation of the substructure of the explosively loaded nickel foil. The increase in density of dislocations in the foil occurs primarily as a result of dislocations arising at the shock wave front.

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1/2 013 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--ROLE OF A SULFUR CONTAINING POLYNUCLEOTIDE PEPTIDE COMPLEX IN CELL DIVISION IN CHLORELLA VULGARIS -U-

AUTHOR-(03)-GURYUNOVA, S.V., PUSHEVA, M.A., GERASIMENKO, L.M.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(4), 966-8

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CHLORELLA, SULFUR COMPOUND, PEPTIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/0434 STEP NO--UR/0020/70/190/004/0966/0968

CIRC ACCESSION NO--AT0114714

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AT0114714
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ISOLATED S CONTG. POLYNUCLEOTIDE PEPTIDE COMPLEX (S-NP) STIMULATED C. VULGARIS GENERATION AND CELLULAR DIVISION (SPORULATION) AND INCREASED THE NO. OF AUTOSPORES FORMING, INDICATING A DIRECT ROLE OF THE S-NP IN PROCESSES LEADING TO CELL NUCLEUS DIVISION. FACILITY: INST. MIKORBIOL., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 582.26

GORYUNOVA, S. V., PUSHEVA, M. A., and GERASIMENKO, L. M., Institute of Microbiology, Academy of Sciences USSR, Moscow (Presented by Academician A. A. Imshenetskiy)

"The Role of Sulfur-Containing Polynucleotide Peptide Complex in Cell Division in Chlorella vulgaris"

Moscow, Doklady Akademii Nauk SSSR, Vol 190, No 4, 1970, pp 966-968

Abstract: The effect of sulfur-containing compounds on growth, maturation and cell division of synchronous and nonsynchronous cultures of C. vulgaris was studied. The sulfur-containing polynucleotide peptide complex (S-NP) was isolated from synchronous C. vulgaris cells at the stage just prior to division. It was determined in an experiment with nonsynchronous material that addition of S-NP stimulated growth of C. vulgaris. In experiments with synchronous material, S-NP was added at different periods of illumination. Experimental data showed that S-NP decreases the generation and cell division period, and increases the quantity of autospores formed. S-NP participates directly in processes leading to nuclear cell division.

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USSR

UDC: 582.26

GORYUNOVA, S.V., PUSHEVA, M.A., and GERASIMENKO, L.M., Institute of Microbiology, Academy of Sciences USSR

"The Effect of a Sulfur-Containing Nucleotide Peptide on the Life Cycles of a Synchronous Chlorella vulgaris Culture"

Moscow, Doklady Akademii SSSR, Vol 190, No 2, 1970, pp 455-457

Abstract: In an earlier work using electrophoresis and paper chromatography the authors isolated a sulfur-containing polynucleotide peptide complex from cells of a synchronous Chlorella vulgaris culture and found that the nucleotide part consisted of four nucleotides characteristic of RNA, while the peptide part included cystine, lysine, arginine, aspartic acid, glycine, glutamic acid, and unidentified compounds. In the present study, anion-exchange chromatography revealed that the sulfur-containing nucleotide peptide was a complex compound that broke down into several fractions, of which only one, No 28, was biologically active. Fraction 28 contained the nucleotide peptide and differed from the other fractions in its ultraviolet absorption spectrum. Addition to the culture of individual constituents of the compound (RNA hydrolysate and various amino acids) stimulated cell growth, but to a lesser degree than did the complex as a whole, and had no effect on the time of the life cycle.

1/1

Organ and Tissue Transplantation

USSR UDC 612.17+612.215.7-089.843

PRIYMAK, A. A., GERASIMENKO, N. I., ANICHKOV, M. N., VIGDORCHIK, I. V., AVERBAKH, M. M., DOBKIN, V. G., DEMIDOV, B. S., VIGDORCHIK, S. I., PAKHOMOVA, Z. I., PETUKHOVA, I. V., VAKSMAN, B. M., GALAYEVA, V. N., and KOZLOV, P. D.

"Use of an Isolated Heart-Lung Preparation in Experimental Transplant Surgery"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 2, 1971, pp 22-23

Abstract: Brief preliminary report on the use of an isolated heart-lung preparation with a working heart in more than 200 experiments on dogs, swine, calves, and sheep. The isolated heart-lung preparation is connected by special cannulas to the peripheral vessels of the recipient's systemic circulation. The isolated lungs inspire an air mixture under hyperventilation conditions. The parameters of electrical activity of the donor's and recipient's hearts, recipient's brain, hemodynamics, biochemical changes in blood, external respiratory function, blood gases, morphology of the tissues of the isolated heart-lung preparation (in various stages of survival) and of the recipient (following biological oxygenation) are investigated. The experiments showed that the physically stabilized heart-lung preparation when used as a biological oxygenator remains viable and ensures good lung and heart function for 10 to 15 hours. It is capable of adjusting automatically to the recipient's circulation and without traumatizing the formed elements

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APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200910014-2"

USSR

PRIYMAK, A. A., et al., Voyenno-Meditsinskiy Zhurnal, No 2, 1971, pp 22-23

of the blood maintains the necessary blood flow rate.

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USSR UDC: 621.315.592

GERASIMENKO, N. N., DVURECHENSKIY, A. V., ROMANOV, S. I., and SMIRNOV, L. S.

"Interaction of Defects and Impurities in the Introduction of Ions into Silicon"

Leningrad, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1978-1981

Abstract: The experiments described in this paper were designed for examination of the interaction involving the defects appearing with the introduction of ions into crystals by ion bombardment, and implanted as well as diffusion-generated impurities. Specimens for the experiments were Si doped with boron, with a resistivity of about 1 ohm·cm, bombarded by Ar^+, B^+, E = 40, and P^+, E = 40 kev. The methods of electron paramagnetic resonance and the diffraction of fast electrons by reflection were used for the investigation. Anode oxidation controlled removal of the Si layers. A curve giving the number of paramagnetic defects as a function of the ion irradiation dosage shows that the process of defect accumulation under Ar^+ bombardment is subject to laws found earlier by these same authors (e.g., FTP, 5, 1971, p 1700) but that

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USSR UDC: 621.315.592

GERASIMENKO, N. N., et al, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1978-1981

irradiation by B^+ and P^+ produce different results, with a reduction in the number of VV centers as a result of higher dosage. This anomaly is explained by the disappearance of the VV centers at a definite concentration of the introduced impurity, while further bombardment leads to restoration of the crystal structure.

2/2

USSR

UDC: 621.315.592

GERASIMENKO, N. N., DONINA, V. I., LEZHEYKO, L. V., SIROCHINSKIY, S. E., and SMIRNOV, L. S., Institute of Semiconductor Physics, Novosibirsk

"Irradiation of Diamond Crystals by Protons"

Leningrad, Fizika i tekhnika poluprovodnikov, No 8, 1972, pp 1489-1494

Abstract: An investigation is made of the effects of irradiating diamond crystals with protons, plus subsequent annealing, on the characteristics of the crystal, and an explanation is given of the reactions of the specimens by considering the peculiarities of the disorder region and the consequent compensation of conductivity. Changes in the electrical conductivity and cathode luminescence spectra of the diamonds when proton-irradiated and annealed were recorded. The problem of finding the laws governing the behavior of the diamonds under such treatment was solved by comparing the data obtained after irradiation by both protons and electrons since irradiation by electrons permits definite assumptions regarding defects resulting in electrical conduction and cathode luminescence spectrum changes. Three types of crystal were investigated: Natural, types Ia and IIa; synthetic nonconducting crystals;

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APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200910014-2"

USSR

GERASIMENKO, N. N., et al, Fizika i tekhnika poluprovodnikov, No 8, 1972, pp 1489-1494

synthetic p-type semiconductor crystals alloyed with B, Al, and Ti during growth. The authors acknowledge the assistance of V. V. Bolotov for his useful comments, Ye. V. Sobolev for offering the natural diamond crystals, and of V. I. Abramenko, S. A. Sokolov, V. A. Patrenin, and Yu. M. Limasov for irradiating the crystals.

2/2

USSR

UDC: 621.315.592

GERASIMENKO, N. N., DVURECHENSKIY, A. V., KACHURIN, G. A., PRIDACHIN, N. B., SMIRNOV, L. S., Institute of Physics of Semiconductors, Siberian Department of the Academy of Sciences, Novosibirsk

"Radiation Annealing of Defects Formed During Ion Bombardment of Crystals"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 9, Sep 72, pp 1834-1835

Abstract: The authors investigate the recovery of gallium arsenide and silicon structures amorphized by bombardment with 40 keV argon ions. The annealing was accompanied by irradiation with 3.5 MeV electrons or 10 keV protons. The three procedures used for checking structural transformations are described. It was found that defects induced by argon ion bombardment were not removed by heating at 200-250°C without proton irradiation. A temperature of 500°C is required without the proton treatment. When proton bombardment is used, the lower temperature is sufficient for recovery of the nondefective structure. The authors thank S. I. Romanov for taking the electron-diffraction patterns of the surface of the specimens, and B. I. Vikhrev for measuring the electron paramagnetic resonance.

1/1

USSR

UDC 621.315.592

GERASIMENKO, N. N., DVURECHENSKIY, A. V., PANOV, V. I., and SMIRNOV, L. S.

"Threshold Energy of the Formation of Radiation Defects in Semiconductors"

Leningrad, Fizika i tekhnika poluprovodnikov, Vol 5, No 8, 1971, pp 1644-1646

Abstract: The authors set themselves the problem of determining the threshold for the initial formation of a defect of the Fränkel type in semiconductor radiation under electron bombardment in this brief communication. For their experiments, they chose the A center in silicon (the association of a vacancy with oxygen) of the n type with a resistivity of 2 ohm·cm and an oxygen concentration of $2 \cdot 10^{17}$ per cc. The specimens were irradiated in a van de Graaf accelerator at room temperature. The measurements were made by the electron paramagnetic resonance method at a temperature of 77°C with a spectrometer having a sensitivity of 10^{11} spins/gauss. The irradiation dosage was kept small to maintain constant the rate of A-center accumulation. Gratitude is expressed to R. R. Sevast'yanenko and M. P. Shadrina for preparing the specimens and to V. A. Abramenko and S. A. Sokolov for performing

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200910014-2"

USSR

GERASIMENKO, N. N., et al., Fizika i tekhnika poluprovodnikov, Vol 5, No 8, 1971, pp 1644-1646

the irradiation procedure. The authors are connected with the Novosibirsk Semiconductor Physics Institute.

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1/2 016 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--EDGE RADIATION OF CADMIUM SULFIDE -U-

AUTHOR-(03)-GERASIMENKO, N.N., DVURECHENSKIY, A.V., SAFRONOV, L.N.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(3), 478-83

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CADMIUM SULFIDE, FREE ELECTRON, ELECTRON CAPTURE, INOGRANIC CRYSTAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1714 STEP NO--UR/0449/70/005/003/0478/0483

CIRC ACCESSION NO--AP0120426

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0120426
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EDGE RADIATION WAS STUDIED EXPTL. AT T GREATER THAN OR EQUAL TO 80DEGREESK; CDS CRYSTALS OF VARIOUS PURITIES WERE USED. IN THIS TEMP. REGION, THE EDGE RADIATION CAN BE CAUSED BY BOTH A DONOR ACCEPTOR RECOMBINATION AND A FREE ELECTRON CAPTURE BY THE ACCEPTOR CENTER. BOTH MECHANISMS AND THE KINETICS OF EDGE RADIATION ARE DISCUSSED IN DETAIL. FACILITY: INST. FIZ. POLUPROV., NOVOSIBIRSK, USSR.

UNCLASSIFIED

1/2 038 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--CERTAIN ELECTRICAL AND OPTICAL PROPERTIES OF ARTIFICIAL BORON,DOPED SEMICONDUCTOR DIAMONDS -U-

AUTHOR-(05)-BEZRUKOV, G.N., BUTUZOV, V.P., GERASIMENKO, N.N., LEZHEYKO, L.F., LITVIN, YU.A.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA I TEKHNIKA POLUPROVODNIKOV, VOL. 4, APR. 1970, P 693-696.

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRIC PROPERTY, OPTIC PROPERTY, SEMICONDUCTOR R AND D, DIAMOND, BORON, LUMINESCENCE SPECTRUM, NITROGEN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0068 STEP NO--UR/0449/70/004/000/0693/0696

CIRC ACCESSION NO--AP0125903

UNCLASSIFIED

2/2 038 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0125903

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL INVESTIGATION OF THE TEMPERATURE DEPENDENCE OF THE RESISTANCE OF ARTIFICIAL BORON DOPED DIAMOND CRYSTALS OF VARIOUS CONCENTRATION, DURING THE GROWTH PROCESS, AT TEMPERATURES RANGING FROM 300 TO 800 DEG K. THE TYPE OF CONDUCTIVITY OF THE CRYSTALS, AND THE LUMINESCENCE SPECTRA FOR FAST ELECTRON EXCITATION AT TEMPERATURES BETWEEN 90 AND 300 DEG K ARE STUDIED IN THE RANGE FROM 3000 TO 10,000 A. IT IS FOUND THAT SUCH CRYSTALS HAVE A P TYPE CONDUCTIVITY WITH A BORON ACCEPTOR LEVEL OF 0.35 EV, AND THAT THE CRYSTALS ARE COMPENSATED BY A DEEP SEATED NITROGEN LEVEL (3.6 EV) DETERMINED FROM THE LUMINESCENCE SPECTRUM OF THE CRYSTALS.

FACILITY: AKADEMIIA NAUK SSSR, INSTITUT FIZIKI POLUPROVODNIKOV, NOVOSIBIRST, USSR.

UNCLASSIFIED

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USSR

UDC 621.315.592

BEZRUKOV, G.N., BUTUZOV, V.P., GERASIMENKO, N.N., LEZHEYKO, L.V., LITVIN, Yu.A., and SMIRNOV, L.S.

"Electrical and Optical Characteristics of Artificial Semiconductor Boron-Doped Diamonds"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 693-696

Abstract: The artificial diamond specimens were doped by boron in their growth process, and had a carrier concentration, determined by the Hall effect at room temperature, within the limits of $5 \cdot 10^{16}$ to 10^{18} cm^{-3}, corresponding to a boron content of 0.25 to 0.25% by weight. With the variation in concentration of the boron the color of the crystals changed from blue to black. The crystals used in the measurements were cubic, with an edge of 0.5 to 1.5 mm, or in octahedral form. The following characteristics were investigated: type of conductivity, from thermoelectrical measurements; the resistance as a function of the temperature in the interval of 300-800° K, in which the two-contact method of

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USSR

BEZRUKOV, G.N., et al., Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 693-696

electrical measurement was used, with the electrodes made of silver or graphite; radiation recombination spectrum at temperatures of 300 and 90° K with electron pulse excitation, and its dependence on the excitation density. In this latter, the electron energy was 200 kev with a pulse duration of $0.3 \cdot 10^{-6}$ seconds. Also investigated was the duration of the afterglow after the excitation pulse stopped, and its dependence on the wavelength. The authors found these diamond semiconductors to be of the p type.

2/2

USSR

GAVRILKO, V. I., GERASIMENKO, R. T., KALASHNIKOV, V. I., KLIMENKO, A. N.

"Input of Analog Information to the M-220 Computer"

Vychisl. Mat. i Vychisl. Tekhn. [Computational Mathematics and Computer Equipment -- Collection of Works], No 2, Khar'kov, 1971, pp 151-156, (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V704 by the author's).

Translation: An automatic system for input of analog information to a digital computer is described. The characteristics of the apparatus are presented. The operating mode of the M-220 in the complex and the method of writing of program for information input are described. A method is indicated for accounting for the instability of the rate of movement of the magnetic tape during input.

1/1

1/2 027 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--CALCULATION OF THE SELECTIVITY OF FM SIGNAL RECEIVERS -U-

AUTHOR-(02)-DEBROZHANSKIY, I.A., GERASIMENKO, V.F.

COUNTRY OF INFO--USSR

SOURCE--RADIOELEKTRONIKA, VOL. 8, MAR. 1970, P. 361-369

DATE PUBLISHED----MAR70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., NAVIGATION

TOPIC TAGS--FM RECEIVER, SIGNAL IDENTIFICATION, CASCADE AMPLIFIER, FREQUENCY SELECTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0540 STEP NO--UR/0452/70/008/000/0361/0369

CIRC ACCESSION NO--AP0124235

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124235

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF A THEORETICAL BASIS FOR CALCULATING THE TWO SIGNAL SELECTIVITY AND PERMISSIBLE NOISE LEVEL OF A FM SIGNAL RECEIVER WHEN THE CASCADES SITUATED BEFORE THE LIMITER ARE LINEAR AND THE DETECTOR CHARACTERISTIC NONLINEARITY HAS A STRONG EFFECT ON NOISE IN THE RECEIVER OUTPUT. THE SELECTIVITY REQUIREMENTS TO BE MET BY THE INTERMEDIATE DERIVED FOR DETERMINING THE REQUIRED SELECTIVITY OF THIS AMPLIFIER FROM A GIVEN TWO SIGNAL SELECTIVITY OF THE FREQUENCY DETECTOR AND THE SHAPE OF ITS CHARACTERISTIC. IT IS ALSO SHOWN THAT AN EXTENSION OF THE LINEAR SECTION OF THE DETECTOR CHARACTERISTIC DOES NOT SIGNIFICALLY IMPROVE THE TWO SIGNAL SELECTIVITY OF THESE RECEIVERS.

UNCLASSIFIED

G Receivers and Transmitters

USSR

UDC: 621.3.019.4

DOBRZHANSKIY, I. A. and GERASIMENKO, V. P.

"Computing FM Receiver Selectivity"

Kiev, Izvestiya Vuzov SSSR--Radioelektronika, Vol 13, No 3, 1970, pp 361-369

Abstract: It is assumed, in making the calculation of the title, that the portion of the receiver from the receiver input to the input of the limiter is linear, and creates no linear distortions of the signal. Other assumptions are that the amplitude-frequency characteristic of the i-f amplifier is symmetrical around the intermediate frequency, that the amplitude limiter realizes inertialess limiting of the process at a particular level, that the frequency detector is inertialess with respect to the frequency equal to the difference between the instantaneous values of the signal and noise frequencies -- that is, with respect to the beat

USSR

DOBRZHANSKIY, I. A., et al, Izvestiya Vuzov SSSR--Radioelektronika, Vol 13, No 3, 1970, pp 361-369

frequency -- and is linear with respect to the amplitude of the process entering it, that the capacitance coupling the low frequency filter and the final voltmeter is infinitely large, that the filter has an ideal amplitude-frequency characteristic within certain frequency limits. The voltmeter terminating the receiver consists of a nonlinear inertialess four-terminal network, an ideal integrator, and an indicator giving average readings. The function of the voltmeter is to measure two-signal selectivity. The aim of this article is, in part, to supply an effective method of computing two-signal and three-signal selectivity which, in turn, is connected with the problem of communications band density.

2/2

AA0043549 GERASIMENKO V.M.

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 1/70

242506 VOLTAGE CODE "CONVERTER" suitable for use in analogue and digital computers has better accuracy and comprises condenser 5 connected through normally closed relay 6, contacts 7-8. Contacts 9 and 10 are normally open contacts, relay winding 11, source of transformed signal 12 and 13 video booster. At the start of the cycle all discharges are at "zero". At the first stroke the system records "1" on the register discharge. 9.10.67 as 1189508/18-24.V.M.GERASIMENKO & YU.A. SPIRIDONOV (5.9.69) Bul 15/25.4.69. Class 42m^5. Int.Cl.G 06j.

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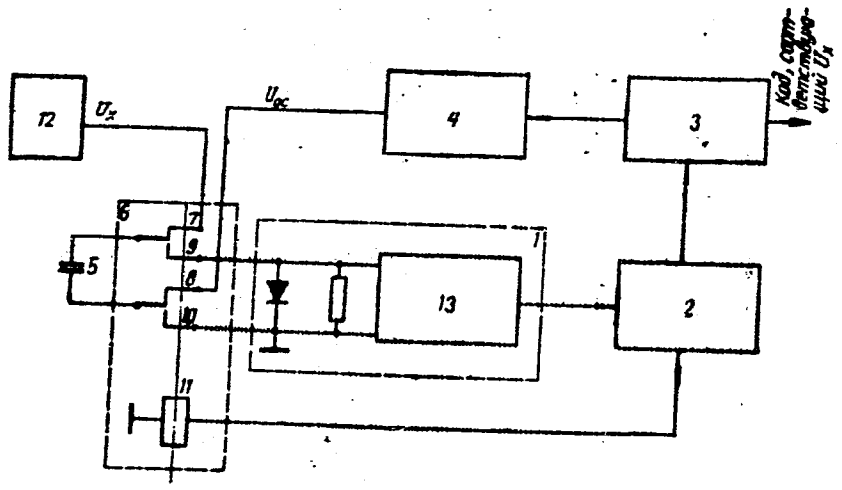
19761991

AA0043549



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19761992

USSR

ZAKHAROV, V. P., GERASIMENKO, V. S., KUCHERENKO, L. P.

"Optical Phonons in Amorphous Arsenic Chalcogenide Films"

Leningrad, Fizika Tverdogo Tela, Vol 14, No 8, Aug 72, pp 2466-2468

Abstract: An investigation is made of the vibrational spectrum of binary mixtures of arsenic chalcogenides of various compositions in the form of amorphous thin films produced by thermal deposition in a vacuum. A study of the infrared transmission spectra of As_2S_3 and As_2Se_3 showed the absorption bands typical of these substances in the crystal state for As_2S_3 and in the vitreous state for As_2Se_3. No absorption band was observed in the 400-33 cm^{-1} frequency interval in the IR-spectrum of thin films of As_2Te_3. An examination of the transmission spectra of mixtures of $As_2(S_xSe_{1-x})_3$ and $As_2(S_xTe_{1-x})_3$ deposited from suspensions of various compositions showed that the presence of atoms of heavier chalcogenides in the mixture changes the relative intensity of the bands of the As_2S_3 spectrum. When selenium is introduced into the films, the most noticeable change is observed for the low-frequency band, and the center of gravity of the entire absorption band for As_2S_3 is displaced toward the

USSR

ZAKHAROV, V. P., Fizika Tverdogo Tela, Vol 14, No 8, Aug 72, pp 2466-2468

high-frequency region, occupying a position defined by two stable bands in the As_2S_3 spectrum. The relative intensity of the As_2Se_3 absorption band increases with an increase in its content in the film, and a slight displacement is observed in the position of the band maximum toward the low-frequency region of the spectrum. It is concluded that the solubility of As_2S_3 and As_2Se_3 in chalcogenide mixtures is higher than that of As_2Te_3.

2/2

USSR

GERASIMENKO, Ye. P., ZOZULEVICH, D. M.

"Parallel Algorithms for Construction of Sections, Projections and Cross Sections in Digital Computers Using Receptor Matrices"

Izv. AN BSSR, Ser. Fiz.-Tekhn. N. [News of Academy of Sciences, BSSR, Physics-Technical Sciences Series], 1972, No 4, pp 84-88 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V680, by the authors).

Translation: In multiple-terminal automated planning systems utilizing the man-machine dialogue principle, the time required by the computer to perform operations should be as short as possible. Therefore, in addition to increasin the speed of the computer, new principles for problem solving must be sought, leading to effective algorithms and "fast" programs. This article suggests methods for approximate solution of the primary problems of graphic analysis, making it possible to construct algorithms with a high degree of parallelism of calculations and short object programs.

1/1

Computers: Digital

USSR UDC 8.74

GERASIMENKO, YE. P.

"Parallel Processing of Geometric Data by Problem-Oriented Processors"

Vychisl. tekhn. v mashinostr. Nauch.-tekhn. sb. (Computer Technology in Machine-Building. Collection of Scientific and Technical Works), Sept 70, pp 49-61 (from RZh-Matematika, No 5, May 72, Abstract No 5V486 by V. MIKHEYEV)

Translation: The article sets forth basic research findings on the question of an increase in the efficiency of problem-solving in geometric analysis. Two trends are regarded as basic: 1) development of algorithms which require a tenth as many programs for their realization as existing known algorithms and which consist of independent, identical cycles; 2) development of computers which are designed to take into account long-term trends in the development of computer technology and which will efficiently realize algorithms for the solution of geometry problems by simultaneous performance of a large number of operations. A block diagram is given of a problem-oriented processor designed for parallel processing of geometric data. A distinctive feature of the processor is that all the adders of every arithmetic unit (AU) can be interconnected in series: the high-order digit of the i-th AU can be connected through a program-controlled key to the low-order digit of the (i - i)-th AU,

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USSR

GERASIMENKO, YE. P., Vychisl. tekhn. v mashinostr. Nauch.-tekhn. sb. Sep 70, pp 49-61

and the low-order digit of the i-th AU to the high-order digit of the (i + i)-th AU, since, in the aggregate, the adder of the individual processing units can be regarded as one multidigit adder. This makes it possible: first, to eliminate, during the processing of receptor matrices, operations involving the interfacing of individual machine words belonging to one row of the receptor matrix; and, second, to effect data exchange between the processing units. A description is also given of the basic principles for the realization of some specific operations used in automated design.

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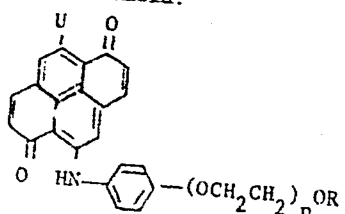
AA0052018 - GERASIMENKO UR 0482 YA YE 3-70

Soviet Inventions Illustrated, Section I Chemical, Derwent,

220386 DYESTUFFS suitable for dyeing "lavsan" fibres in green shades are pyrene derivs of the formula:



(where n is 1-3; R is H, $COCH_3$, CH_3, C_4H_9, etc). These compounds are produced by reacting 3,5,8,10 tetrachloropyrene-1,6-quinone with p-aminophenyl ether of mono-, di- or triethylene glycol, or derivs. thereof under conditions such that one Cl atom is replaced by the corresponding amino group. In an example, 2 g of 3,5,8,10-tetrachloropyrene- 1, 6-quinone are mixed with 1.87 g. of p-aminophenyl ether of ethylene glycol in 20 ml. of nitrobenzene for 6 hrs. at 80°C;

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AA0052018

AUTHORS: Gerasimenko, Yu. Ye.; Shigalevskiy, V. A.;
Rubezhanskiy Filial Nauchno- Issledovatel'skogo
Instituta Organicheskikh Poluproduktov i Krasiteley

then cooled, filtered, washed with nitrobenzene and then with alcohol and dried. The yield of violet flakes of $C_{24}H_{14}Cl_3NO_4$ was 2.04g. (77%). After recrystallisation from nitrobenzene, the m.p. was 297-298°C; λ max = 603 mμ in benzene. 23.11.66. as 1115296/23-4, GERASIMENKO, Yu. E. and SHIGALEVSKII, V.A. Rubezhansk Sect. Organic Intermediates and Dyestuffs.Res. Inst. (4.7.69) Bul. 20/28.6.68. Class 22b, Int. Cl. C 09b.

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19820546

USSR UDC: 8.74

GERASIMENKO, Ye. P.

"Parallel Processing of Geometric Information by Means of Problem-Oriented Processes"

Vychisl. tekhn. i mashinostr. Nauch.-tekhn. sb. (Computer Technology and Machine Building. Scientific and Technical Collection), 1970, Sep, pp 49-61 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V486)

Translation: The paper presents the basic results of research on the problem of improving the effectiveness of solving problems in theoretical analysis. In this regard, two areas are considered as basic: 1) Development of algorithms which can be realized by programs having one-tenth the volume of existing programs for algorithms, and which are made up of identical independent cycles. 2) Development of computers designed with regard to promising trends in computer technology, and effectively realizing algorithms for solution of geometric problems by parallel execution of a large number of operations. A block diagram is given of a problem-oriented processor designed for parallel processing of geometric data. A distinctive feature of the processor is that the adders of each arithmetic device can be series-connected to each other: the most significant digit of the i-th

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USSR

GERASIMENKO, Ye. P., Vychisl. tekhn. i mashinostr. Nauch.-tekhn. sb., 1970, Sep, pp 49-61

arithmetic unit can be connected through a program-controlled switch to the least significant digit of the (i - 1)-th arithmetic unit, while the least significant digit of the i-th unit is connected to the most significant digit of the (i + 1)-th arithmetic unit so that in the aggregate the adders of the individual processing devices can be treated as a single multiple-place adder. This means first of all that it is possible to eliminate operations involving joining of individual computer words belonging to a single line of a receptor matrix when such matrices are being processed, and secondly that information can be exchanged between the processors. The paper also describes the basic principles of realization of certain specific operations used in automated planning. V. Mikheyev.

USSR

GERASIMENKO, Ye. P., ZOZULEVICH, D. M.

"Minimization of the Computational Process Involved in Solution of Geometric Problems by Receptor Matrices"

Vychisl. Tekhn. v Mashinostr. Nauch-tekhn. sb. [Computer Technology and Machine Building, Scientific and Technical Collection], June, 1970, pp 26-40, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V523 by the author's).

Translation: An interpolation method of formation of receptor matrices describing curves or limited areas is studied. The realization of the method allows the number of computational and logic operations to be reduced in comparison with the method of scanning. A diagram of a homogeneous, built-in device is suggested, allowing the time of solution of the basic geometric problems to be reduced by two orders of magnitude.

1/1

GERASIMENKO, Yu. A.

SO: JPRS 53402
18 JUNE 71

UDC: 616.12-08:362.11(470.311-214)

EXPERIENCE IN TREATING CARDIOVASCULAR PATIENTS IN A SANATORIUM IN A MOSCOW SUBURB

(Article by Yu. A. Gerasimenko, Polmoskov'ye Sanatorium, Zvenigorod, Moskovskaya Oblast', Moscow, Zdravookhraneniye, Russian, No 5, 1971, submitted 14 December 1970, pp 21-24)

In 1965-1969, 12,050 people were treated at Polmoskov'ye Sanatorium in Zvenigorod. Most of the patients were 45-65 years of age. There were 8,727 (72.4%) treated for cardiovascular pathology, 1,922 for nervous system disease (15.9%), nontuberculous respiratory pathology accounted for 290 (2.4%), and 1,111 (9.2%) were treated for other diseases.

The results of treatment of patients in the sanatorium are submitted in Table 1.

During the period from 1965 to 1969, one patient died in the sanatorium who presented a combined mitral heart lesion of rheumatic etiology and frequent attacks of cardiac asthma. Death occurred following physical exertion due to an instantaneously developing acute cardiac insufficiency.

Most of the patients in the sanatorium were treated with pathology of the cardiovascular system (72.4%). The distribution of these patients according to nosological forms is shown in Table 2.

Impaired cerebral circulation prior to admittance to the sanatorium was present in 93 (2.6%) patients suffering from atherosclerosis; marked impairment of cardiac rhythm (group extrasystole, auricular fibrillation, and other) were found in 264 (7.3%); grade IB-IIB circulatory insufficiency was present in 276 people (7.6%). In most of the cases of atherosclerosis, there was primarily involvement, simultaneously, of coronary arteries of the heart and cerebral vessels. Improvement was noted in 93.8 percent and deterioration in 0.8 percent; exacerbation of chronic coronary insufficiency, impaired cerebral circulation, myocardial infarction (8 patients).

The diagnosis of grade IB was made on 663 out of 2,673 (24.8%) of the patients with essential hypertension, grade II in 1,921 (71.9%), and grade

6

UDC 621.385.632

USSR

GERASIMENKO, Yu. A., KALININ, Yu. A., KATS, A. M., KUDRYASHOV, V.P.

"Change Of Phase And Amplitude Of The Output Signal In A TWT During A Pulse"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 6, pp 86-94 (from RZh--Elektronika i yeye primeneniye, No 10, October 1970, Abstract No 10A158)

Translation: The mechanism is considered of changes during a pulse, of the phase and amplitude of the output signal of a TWT resulting from ionization of residual gases by an electron beam. It is shown that the magnitude of the changes depends on the pressure of the residual gases and parameters of the TWT. An approximate calculation is given for the changes of phase and amplitude of the output signal in a pulse. Experimental results are presented. Summary.

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USSR

UDC 621.382

BASAN, A.R., GERASIMOV, A.B., DOLIDZE, N.D., KAKHIDZE, N.G., KONOVALENKO, B.M., SHILLO, A.G.

"Isothermic Annealing Of Radiation Defects In Ge Irradiated By Fast Electrons At 77° K"

V sb. Radiats. fiz. nemet. kristallov (Radiation Physics Of Nonmetallic Crystals--Collection Of Works), Vol 5, Part 1, Kiev, "Nauk.dumka," 1971, pp 207-210 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10B404)

Translation: The results are presented of an investigation of the processes of isothermic annealing of Ge at certain stages of reinsertion of the initial concentration of current carriers. It is shown, for example, that at the stage of abrupt reinsertion of the concentration of electrons during annealing of specimens with a resistivity of 1--10 ohm. cm., doped with antimony, after irradiation by fast electrons, a complex process of change of the complexes of defects takes place. For the process of reinsertion of the concentration at T = 77° C an activation energy of 1.1 plus or minus 0.1 ev is obtained and for the process of forming a level, 1.7 plus or minus 0.2. During annealing after irradiation at a 240° C temperature on p-type specimens with a resistivity of 5 ohm.cm, the activation energy equals 0.95 plus or minus 0.1 ev at the stage of reinsertion of holes. Here a simple bimolecular process takes place. 4 ref. I.M.

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USSR UDC 5.35.215.1

BASMAN, A. R., GERASIMOV, A. B., DOLIDZE, N. D., KAKHIDZE, N. G., KONOVALENKO, B. N., SHILLO, A. G.

"Concerning 'Photosensitive' Defects in Ge Irradiated at T = 77° K"

V sb. Radiats. fiz. nemet. kristallov (Radiation Physics of Nonmetallic Crystals -- Collection of Works), Vol 3, Part 1, Kiev, "Nauk. dumka," 1971, pp 210-216 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10B236)

Translation: Photo-sensitive defects in Ge were studied, which form during irradiation of crystals by electrons at 77°K. If after annealing, the irradiated crystals are illuminated by white light, then the concentration of holes increases and remains constant after cessation of the illumination. N-type specimens doped with Sb and As, which changes the type of conductivity as a result of irradiation, and also p-type specimens doped with Ga were investigated. It is assumed that the effect of the action of light on the concentration of holes is the result of a change of the structure of the defects during heating and illumination. 3 ill. 6 ref. I. V.

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USSR UDC 537.311.33:546.289

GERASIMOV, A.B., DOLIDZE, N.D., KAKHIDKHE, N.G., KONOVALENKO, B.M.

"Kinetics Of Forming Radiative Defects Which Are Produced In Germanium By Gamma-Rays At A Temperature of 77°K"

V sb. Radiatsion. fiz. nemet. kristallov (Radiation Physics Of Nonmetal Crystals--Collection Of Works), Minsk, Nauka i tekhn., 1970, pp 112-115 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B23)

Translation: Specimens were used for measurement with the initial concentration of the chemical impurity (Sb)N_d = (2.0 - 2.5) x 10^{12} cm^{-3} irradiated by integrated fluxes of gamma quanta. The spectra of the impurity photoconductivity were taken after a number of isochronous annealings. It was discovered that the low-temperature irradiation of n-type Ge leads to the appearance of a complex spectrum of energy levels located in the middle of the forbidden zone, and which as the result of irradiation at 77° K forms a great number of different types of defects, the majority of which are connected in complexes. 2 ill. 1 ref. Summary.

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USSR UDC 621.373.431(088.8)

GERASIMOV, A. B.

"High-Voltage Pulse Generators"

USSR Author's Certificate No 272360, Filed 22 Aug 68, Published 9 Sep 70 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4G208P)

Translation: A high voltage oscillator is proposed. It is executed as an n-step multiplication circuit containing a charging unit, n - 1 voltage multiplication stages and n storage capacitors. Each of the stages contains charge chokes and capacitors dischargable through the load. In order to use one common commutator for all stages, a pair of chokes of each of the n - 1 stages is formed by a common bifilar winding wound on a ferromagnetic core. This constitutes a transformer with a transformation coefficient equal to one. The primary and secondary windings of all the transformers are joined individually in series; here, the chain of primary windings is grounded, and the chain of secondary windings is included between the high voltage clamp of the charging unit and the n-capacitor connected to the load. The capacitors of each of the multiplication stages are included between the end of the primary and beginning of the secondary winding of each transformer, and the common

USSR

GERASIMOV, A. B., USSR Author's Certificate No 272360, Filed 22 Aug 68, Published 9 Sep 70

commutator is included between the beginnings or between the ends of the windings of any of the transformers, including between the beginning of the series chain of secondary windings of the transformer and the grounded bus. For simplification of the device, the bifilar winding of the transformers is made of coaxial cable, and the common commutator is included in the intermediate multiplication stage.

2/2

GERASIMOV, A.D.

SPRS 6963
6.73

IV-5. INTENSIFICATION OF THE GROWTH PROCESSES OF EPITAXIAL LAYERS BY PHOTO EXITATION AND THE APPLICATION OF ELECTROMAGNETIC FIELDS

[Article by Yu. D. Chistyakov, A. D. Gerasimov, Yu. F. Ravnova, A. N. Pal'yanov, V. A. Kirpichin, V. I. Sharapov, Moscow; Novosibirsk, III Simposium po Protsessam Rosta i Svoystv Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June, 1972, p 44]

The effect on the system from photoirradiation and electromagnetic fields permits, in contrast to the thermal effect, stimulation of defined chemical reactions both in the volume and at the phase interface. Each chemical act, depending on the electronic transitions taking place in it requires irradiation by light of a strictly defined wave length. The photoirradiation offers the possibility of simple realization of a selective crystal growth with respect to area.

In the papers by Frazier and Kumarave it was demonstrated that irradiation by ultraviolet light lowers the autoepitaxy temperature of the silicon in the presence of hydrogen reduction of $SiCl_4$ and Si_2Cl_6 respectively, and with a constant temperature it increases the growth rate.

In the experiments of the authors by application of an electric field with an intensity of 3 kv/cm in the chloride process of silicon autoepitaxy, it was possible to increase the growth rate of the epitaxial layers and also to reduce the process temperature. In addition, the variation in intensity of the electromagnetic field permits variation of the alloying level without varying the composition of the vapor-gas mixture.

The indicated effects also open up new possibilities for integrating the technological processes.

USSR UDC: 621.384.83

GERASIMOV, A. I., DUBINOV, Ye. G., and KUDASOV, B. G.

"Spectrometer of Electron Pulse Beams"

Moscow, Pribory i Tekhnika Eksperimenta, No. 3, 1971, pp 31-34

Abstract: An instrument which records the spectra of accelerated electrons in the course of about 40 seconds and measures their maximum energy is described. The error in determining the latter is a function of the spectrometer resolving power and the accuracy with which the magnetic field is measured; in this instrument, it did not exceed 2.5% with an average magnetic field of 835 oersteds and an energy level of 2 Mev. The measurement error of the continuous spectrum in the range of 0.6-2 Mev, without such singularities as sharp peaks or drops, was about 10%. Operating on the principle of the magnetic spectrometer, the device is said to be stable, easy to operate, and simple in construction and repair. Drawings are given of the instrument's basic structure, the construction of the magnet, and the schematic of the electrometric amplifier. Oscillograms of the signals output from the beam sensors for various modes of operation are given.

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USSR

UDC 528.283:528.06

GERASIMOV, A. P.

"A Method of Computing the Geodetic Azimuth on the Basis of Star Observations"

Moscow, Geodeziya i Kartografiya, No 5, May 1973, pp 20-22

Abstract: A procedure is proposed for computing the geodetic azimuth on the basis of the passage of stars in any vertical. Working formulas are provided for the implementation of this procedure, which is sufficiently rigorous for the determination of azimuths with a mean-square error of ±1" and greater. It may be used for field computations on the basis of Laplace points, with the provision that during office analysis of the observation materials, the azimuth will be computed by the least-square method. 3 references.

1/1

USSR UDC 576.3:612.017:615.5

BUKHARIN, O. V., GERASIMOV, A. V., USVYATSOV, B. YA., and FROLOV, B. A.

"The Effect of Some Benzimidazole Derivatives on Protein Synthesis in Bacteria", pp 69-72, Sintez Belka i Rezistentnost' Kletok, (Proteins Synthesis and Cell Resistance), Leningrad, "Nauka," 1971, 104 pp

Abstract: The effect of benzimidazole derivatives on the frowth of Streptococci and Staphylococci and their cpacity to produce bacteriocins were studied. Intensification of protein synthesis in coccus bacteria under the influence of dibazole and metazole was noted. By means of small doses of these compounds it is possible to stimulate the growth and multiplication of bacteriocin-producing strains of Streptococci and Staphylococci. Dibazole and metazole in concentrations stimulating the growth of microbes increase the production of bacteriocin in bacteriocin-producing strains.

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1/2 041 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--THE WONDERFUL WORLD OF TITANIUM -U-

AUTHOR--GERASIMOV, B.

COUNTRY OF INFO--USSR

SOURCE--SOTSIALISTICHESKAYA INDUSTRIYA, MAY 24, 1970, P 4

DATE PUBLISHED--24MAY70

SUBJECT AREAS--MATERIALS, AERONAUTICS

TOPIC TAGS--FOOD CONTAINER, TITANIUM ALLOY, TITANIUM CORROSION, AIRCRAFT MATERIAL, AIRFRAME COMPONENT/(U)TU144 AIRCRAFT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/1248 STEP NO--UR/0533/70/000/000/0004/0004

CIRC ACCESSION NO--AN0103132
UNCLASSIFIED

2/2 041 UNCLASSIFIED PROCESSING DATE--18SEPTO
CIRC ACCESSION NO--AN0103132
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE COMPRISES SEVERAL ITEMS UNDER ONE TITLE AND IS A POPULAR SCIENCE TYPE DISCOURSE ON TITANIUM. IT MENTIONS TITANIUM SEA WATER CORROSION TESTS CONDUCTED AT THE TITANIUM INSTITUTE-INSTITUT TITANA- DIRECTED BY R. K. OGNEV IN ZAPOROZH, YE. THE ARTICLE MENTIONS THAT ENGINE NACELLES, ELEVONS, AND RUDDERS OF THE TU144 ARE MADE OF TITANIUM. IT APPEARS THAT TITANIUM IS SO PLENTIFUL IN THE SOVIET UNION THAT THE FOOD INDUSTRY HAS ORDERED 900,000 TITANIUM DRUMS AND THE WINE INDUSTRY PUT IN AN ORDER FOR TITANIUM DRUMS TO AGE CHAMPAGNE.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200910014-2"

USSR UDC 535.853.3

GERASIMOV, F. M., SERGEYEV, V. P., TEL'TEVSKIY, I. A., and SERGEYEV, V. V.

"Optoelectronic Servo System for Controlling the Making of Diffraction Gratings"

Leningrad, Optika i Spektroskopiya, Vol 28, No 6, Jun 70, pp 1190-1203

Abstract: The article describes an optoelectronic servo system developed by the authors for controlling the ruling engine for the making of diffraction gratings. The system permits continuous and high-precision synchronization of the movement of the grating being fabricated and the diamond cutter which inscribes the lines. The system is based on the principle of a selsyn connection between the ruling carriage and the main shaft of the machine. The optoelectronic block measures the movement of the ruling carriage over the interference moiré fringes and acts as a transmitting selsyn. All elements of the electronic block use semiconductor devices. Adjustments are made by changing the rotational speed of the worm of the ruling engine through

USSR UDC: 542.65:546.289

MOROZOV, V. N. and VENEDIKTOV, A. A.

"Kinetics of Crystallization and Natural Aging in Germanium Dioxide"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 13, No 3, September 1970, pp 549-551

Abstract: Since the broad use of GeO_2 for manufacturing new types of glass requires a detailed study of the transitions in GeO_2 for various modes of thermal processing, the authors have undertaken the experiments described in this paper. Their primary purpose is to investigate the interactions of GeO_2 in vitreous form with the atmosphere because that substance is a hygroscopic material. There is little available data in the literature on this point. The method of infrared spectroscopy was primarily used in this research. Included in the scope of the experiments was the natural aging of vitreous GeO_2 under the action of the atmosphere. As the reason for their interest in this subject, the authors cite the fact that of all the oxides of elements in the IV column of the periodic table, GeO_2 is unique in that it is readily soluble in water. In concluding, they express their gratitude to V. A. Florinskaya, V. N. Polukhin, V. A. Frank-Kamenetskiy, and G. I. Lisyuk for their assistance.

1/1

1/2 013 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--CONCAVE DIFFRACTION GRATINGS WITH VARIABLE SPACING -U-

AUTHOR-(04)-GERASIMOV, F.M., YAKOVLEV, E.A., PEYSAKHSON, I.V., KOSHELEV, B.V.
COUNTRY OF INFO--USSR

SOURCE--OPT. SPEKTROSK. 1970, 28(4), 790-5

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--DIFFRACTION GRATING, ASTIGMATISM, SPECTROSCOPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1266 STEP NO--UR/0051/70/028/004/0790/0795

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROPERTIES OF CONCAVE DIFFRACTION GRATINGS WITH LINEARLY CHANGING LINE DISTANCE ARE DISCUSSED IN RELATION TO THE IMAGE STIGMATISM. A METHOD IS GIVEN FOR THE PREPN. OF GRATINGS WITH VARIABLE SPACING FOR REDUCING ASTIGMATISM IN THE WAVELENGTH REGION USED IN SPECTROSCOPY.

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GERASIMOV, F. M.; YAKOVLEV, E. A.; et al

"Concave Diffraction Gratings with Variable Spacing"

Leningrad, Optika i Spektroskopiya; April 1970, pp 790-5

ABSTRACT: The properties of concave spherical gratings in which the distance between the lines varies according to a linear law are studied. With such gratings the focal line for the meridianal rays is shifted from the Rowland circle and can intersect the focal line for the sagittal rays or be tangent to it. Because of this, the image at specified points becomes completely stigmatic, while near them astigmatism of the grating is significantly lessened. A method of producing gratings with variable spacing is described. The results of the experimental study of the properties of concave gratings produced by means of this method are found to be in agreement with theory. It is shown that vy varying the spacing it is possible to decrease significantly the astigmatism of concave gratings in the region of waves of sufficient length for spectrographic studies.

The article includes 7 equations and 5 figures. There are 9 bibliographic references.

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AUTHOR: Gerasimov, G.I. SOV/13-58-6-515/685

TITLE: Machine for Enamelling Dishes by Glazing (Mashina dlya naneseniya emali na posudu metodom obliva)

PERIODICAL: Byulleten' izobreteniy, 1958, Nr 6, p 113 (USSR)

ABSTRACT: Class 48c, 6. Nr 113580 (588260 of 23 Feb 1957). Submitted to the Committee for Inventions and Discoveries at the Ministers Council of USSR. A machine consisting of a rotor rotating on a horizontal axis, and four spindles placed perpendicularly to the rotor axis and at 90° to each other, the spindles bearing holding devices for attaching dishes to. The machine design achieves a higher production rate.

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USSR UDC 532.526.4

POLYAYEV, V. M., BASHMAKOV, I. V., GERASIMOV, I. M., and VLASOV, D. I.

"Spectral Measurements in a Turbulent Boundary Layer of a Permeable Plate in Blasting"

Minsk, Inzhenerno-fizicheskiy zhurnal, No 6, 1973, pp 1109-1113

Abstract: Investigation of the turbulence structure in a boundary layer under blasting is important in connection with developing efficient methods of thermal protection. This paper describes detailed experiments in thermoanemometric measurements of the averaged and pulsation characteristics of a boundary layer in a flat model 2.5 m long and 400 mm wide with a blast flow velocity of 10 m/s. Instruments included an A-10 aerodynamic tube of the Moscow State University Institute of Mechanics, a constant-temperature thermoanemometer of the "DISA" type, and a spectrum analyzer. Results of the measurements and a description of the experimental apparatus and method are given in earlier papers by most of the authors named above (e. g., Polyayev, V. M., et al, Termoanemometricheskiye issledovaniya turbulentnogo pogranichnogo sloya na pronitsayemoy plastine in vitro -- Thermoanemometric Investigation of

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POLYAYEV, V. M., et al, Inzhenerno-fizicheskiy zhurnal, No 6, 1973, pp 1109-1113

of a Turbulent Boundary Layer in a Permeable Plate Under Blasting -- in the collection Trudy IV Vsesoyuznogo soveshchaniya po teplo- i massoperenosu, vol 1, Minsk, 1972). In these experiments, data was obtained on the intensity distribution of longitudinal, transverse, and sidewise velocity pulsations under the blasting, and of turbulent tangential stresses on the layer. The latter indicate vortical distortions in the layer.

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